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(54) Comprehensive Apparatus for Training and Strengthening with One's Own Strength

(21) Application No. S54-56066

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## Specification

### 1. Title of Invention

Comprehensive Apparatus for Training and Strengthening with One's Own Strength

### 2. Claims

A comprehensive apparatus for training and strengthening with one's own strength, comprising a training and strengthening apparatus wherein a plurality of expanders 4 and 4 is suspension-mounted so as to be severally and freely attachable to and detachable from a bed 9 made in an integrated form which combines a longitudinal type and a lateral type, bracket plates 8 and 14 are secured above and below the upper parts of legs 1, pulleys 6 and 10 are severally mounted on shafts, having various fastening hardware for mounting auxiliary pulleys 11 on shafts to the upper bracket plate 14, through which connecting cords are passed, and for attaching bands to the ends of intervening cords; wherein equipment of the same scheme is provided to the bed both longitudinally and laterally, the longitudinal and lateral expanders can be activated separately, twisters and ankle training devices or the like having different mechanisms are severally deployed at the left and right feet of the lateral type bed, [wherewith], by their being individually and sequentially used, the entire body can be trained and strengthened.

### 3. Detailed Description of Invention

This invention relates to a comprehensive training apparatus which employs the extension-contraction forces of lateral expanders, wherein the ends at one end of publicly known expanders are suspended to legs below the forward end bed of a cross-shaped bed made in an integrated form combining a longitudinal type and a lateral type, to the other ends of which the ends at one end of connecting cords are fastened, connecting cords are passed, via pulleys provided at the legs on the back end of the cross-shaped bed, between pulleys provided at the edge of the bed at the end immediately above that, there being hardware for hanging the bed at the end of the cords, the ends at one end of publicly known expanders are severally suspended to the lower legs of bed extensions on both side surfaces of the bed, to the other ends of which expanders are severally fastened connecting cords, the other ends of which cords are [passed? (*direct object left hanging with no predicate in original*)], one pulley is provided, between two pulleys provided at the edges of the upper ends of the respective extensions of the bed 9 and below two pulleys at the other extension thereof, so that the vertical expanders of the several connecting cords do not rub across each other, hardware for suspending belts is fastened to the cord ends through these [pulleys], to which hardware various belts for the legs, hands, and neck and the like are fastened, that is, to a comprehensive apparatus for training and strengthening with one's own strength, that can be used for training and strengthening the muscles, joints, and tendons and the like of the entire body, and for helping [to improve] the appearance of the entire body, that combines twisters, at the lower legs of the lateral type bed that is the bed extensions, for twisting the hips and training the muscles and joints and the like from the hips down, with the ankle training and strengthening apparatus of Utility Model Application No. S53-179130/1978, already

submitted, which is for training the joints, muscles, and tendons and the like of the ankles. That being the case, the configuration of the present invention, together with embodiment modes therefor, are now described in detail with reference to the drawings.

A cross-shaped base is formed by connecting and assembling pipe legs 1 and pipe crossbars 2, a crossbar 3 is provided at the position of the height of the legs on the front side, to this crossbar are attached two sets of hooks 5, so as to be freely detachable, at a suitable interval, with publicly known expanders 4 of [illegible; possibly *equal*] length, to the legs (1) on the back side of the bed are attached, at a suitable height, a bracket plate 8 to which are severally secured by pins 7 two pulleys 6, on the left and right thereof, at the same interval as the hooks [5]. Provision is made so that, at the perpendicularly upper parts of these respective pulleys 6 and 6, when the connecting cord 12 operates with two pulleys, namely a main pulley 10 and an auxiliary pulley 11, directly below the bed 9, that cord 12 will not be dislocated from the sheave channel 10' of the pulley 10. To left and right brackets, respectively, (a) bracket plate(s) 14 secured by pins 13 is/are affixed so that the outer circumferential parts of the two pulleys 10 and 11 become aligned, a rectangular bed 9, having suitable cutouts at the same interval as the interval between those left and right pulleys 10 and 10, is mounted on the base, to the two hooks 5 are suspended the ends at one end of the respective expanders 4, to the other ends of which are fastened the connecting cord 12 of a suitable length. The other end of this cord 12 is passed between the main pulley 10 and the auxiliary pulley 11 via the pulley 6, to that end is fastened band attaching hardware 15, to this hardware are attached various types of bands, whereupon the longitudinally oriented training unit is thereby configured. To the legs 1' of the extension on the left side of the extension base legs made to protrude at suitable positions on the two side surfaces, a crossbar 18, to the middle of which a hook 17 for suspending an expander 16 at a suitable position is secured, is connected and secured so that the two sets of expanders 4 of the longitudinally oriented training unit and a connecting cord 27 do no rub across each other. Between the right-side legs 1", a bracket plate 21 to which a pulley 19 is secured by pins [illegible], is affixed. At the perpendicularly upper part of this pulley 19, a bracket plate 24 to which a main pulley 22 and an auxiliary pulley 23 are conjoined is secured. To a hook 25 on the left-side leg, one end of an expander 26 is suspended. The other end thereof fastens to a connecting cord 27, and passes between the sheave channels 22' of the main pulley 22 and auxiliary pulley 23 via the pulley 19. Band attachment hardware 28 is attached, and, above that, a suitably cut-out extension plate 29 is affixed on the base on the extension side to form the left extension. In the left extension, a crossbar [illegible], to the middle whereof a hook 25 is secured, is attached, at a suitable position, to a left extension base pipe leg 1". A bracket 32 to which a main pulley 30 and an auxiliary pulley 31 are conjoined is attached to a left extension leg 1, the expander 26 is suspended from the hook 25, a connecting cord 33 is fastened, passed between the sheave channels 30' of the two [pulleys namely] the main pulley 30 and the auxiliary pulley 31, band attachment hardware 34 is fastened [thereto], and the extension plate 35 is mounted on the base on the extension side, whereupon the laterally oriented training unit is configured. To a lower side crossbar 2' of the left rear extension base 1", two L-shaped pipes 36 are connected, horizontally and in parallel, at a suitable interval, by a lateral reinforcing rod 37. Onto these L-shaped pipes 36, a base plate 39, having an upright bearing 38 in the center thereof, is securely mounted. On the upper side of that bearing, a thrust bearing 40 is mated, and on the

lower side thereof, a radial bearing 41 is mated. To this, the center shaft 43 of a revolving disc platform 42 is mated, and a nut 44 is screwed onto the end of the shaft 43 from the bottom so that [the disc platform 42] can turn freely. At a suitable position on upper and lower crossbars 2 and 2' on the right front extension base leg(s) 1', a T-shaped handle lever 46 having grip pipe 45 T-shaped handles mated thereto on the left and right is securely erected. Thus the twist unit is configured. To a lower crossbar on the left rear extension base leg(s) 1, meanwhile, two L-shaped pipes 47 are secured, in like manner as the left-side twist unit, connected by a pipe lateral reinforcing rod 48. Above the parallel L-shaped pipes 47, a base plate 49 is secured. Connecting belts 51 are secured along the left and right edges, respectively, on the front sides of the upper surfaces of a pair of foot holders 50, while heel stopping brackets are erected at the rear thereof, and foot securing belts 53 are installed in the middle parts so as to be freely detachable. Long channels (54) are provided, running from front to back, in reinforcing plates 54 that run down the center from front to back on the bottoms of the foot holders 50. Above these channels, slots (54)' are provided, in suitable numbers, in a comb pattern, to form shaft receptacles. To these channels are fixed brackets 55 having shafts at a height corresponding thereto [i.e. to the shaft receptacles]. Support shafts 56 are inserted into holes that penetrate through the upper parts of the brackets. [The long channels (54)] are mounted loosely so that they can move, freely sliding or turning, over the support shafts 56. At suitable positions on front parts of the brackets 55, stoppers 57 are secured for limiting the movement of the toes. Above the base plates 49, left and right foot holders are mounted and secured, respectively aligned in parallel at a suitable interval. Stoppers 58 for limiting the downward movement at the rear of the foot holders are respectively secured on the base plates 49, and a T-shaped handle lever 60 having grip pipes 59 in like manner as the twist unit are erected. Thus the ankle training and strengthening unit is configured. With these training units, namely the two training units that are longitudinally and laterally oriented, the twist unit[, and] the ankle training unit, this is a comprehensive training and strengthening apparatus wherewith the entire body can be trained and strengthened.

### Embodiments

To describe how the longitudinally oriented training unit is used, the trainee installs the two ankle bands 61, secures the bands respectively to the band attachment hardware, and begins training. The ways in which training is done with the mechanisms in the comprehensive apparatus of the present invention are now described.

In training exercise A, [the trainee] lies down on his or her back on the bed, grips the head of the bed with both hands, and repeats the exercise of raising and lowering both legs up and down, either simultaneously or alternately. Thereby, training and strengthening is done that imparts muscle strength and endurance in the lower abdominal region and legs, wherefore flab is removed from the lower abdominal region and legs, and aging of legs is prevented.

In training exercise B, [with the trainee] lying on his or her back, both hands are locked behind the head while both feet are kept on the bed, the hips are stretched, and the body is slightly tilted to the rear. In this condition, the hip and back muscles are trained, the waist is made slimmer, and the spine is stretched.

In training exercise C, [with the trainee] on his or her back and the neck and shoulders are raised, or the upper body is raised, while bringing the elbows close together, with the hands held under the head, thereby training the hips, shoulders, and abdominal region.

In training exercise D, the position of the ankle bands is set forward, the band attachment hardware is secured, and, [with the trainee] on all fours, one leg is raised backward. By kicking back with the opposite leg also, the legs, hips, and buttocks are trained.

In training exercise E, [the trainee] lies on his or her stomach in a crawling position and repeatedly bends both knees and ankles, thereby training the muscles at the back of the thighs. This tones the muscles at the back of the thighs.

In training exercise F, a neck band 63 having an elongation cord 62 is secured to both the left and right band attachment hardware, the body is bent forward, the band is placed behind the neck, and the hips are stretched. By repeating this exercise, the neck, back, and abdominal muscles can be trained, and stoop can be prevented.

In training exercise G, [with the trainee] on his or her back and the head positioned on the pulley end [of the bed], two wrist bands 64 are attached to the band attachment hardware, and the arms are stretched upward and repeatedly raised upward toward the front, thereby training the arm, bosom, and shoulders, making the arms and shoulders slimmer, and making the bosom fuller.

Next, with the laterally oriented training unit, the ankle bands are secured on the left and right[.]

In training exercise H, [with the trainee] seated on the bed, the legs are spread apart and secured to the band attachment hardware, and the motion of closing and opening the legs is repeated. Thereby the muscles of the buttocks and inner thighs can be trained.

In training exercise I, [with the trainee] lying on his or her back, both arms spread open, the two wrist bands secured to the band attachment hardware, and the arms stretched out, a pulling-up movement toward the front is repeated, thereby training the shoulders, arms, and bosom to condition the bosom and arms.

In training exercise J, by bending the arms from the elbows and pulling up toward the front with the forearms only, the muscles of the upper arms are trained.

In training exercise K, [the trainee] stands on the disc platform, grasps the grip pipes of the T-shaped handle lever, and twists [from] the waist, thereby improving the functioning of the inner organs, training the legs and hips, and toning the muscles around the stomach.

In training exercise L, after securing the feet in the foot holders, [the trainee] grasps the grip pipes of the T-shaped handle lever, adjusts his or her posture, repeats a heel raising and lowering exercise involving lowering the toes or lowering the heels so as to stand on the toes, either simultaneously [with both feet] or alternately left and right, in a seesaw motion, about the center of the shaft receptacles. This exercise trains the joints,

muscles, and tendons and the like of the ankles and tones the [muscles of] the ankles and calves.

In this manner, with a single training apparatus, the muscles, joints, and tendons and the like of the parts of the entire body, such as the arms, legs, abdomen, hips, back, shoulders, and neck, can be trained from various directions, while also exhibiting a whole-body beautifying effect. Hence the training loads on the muscles, joints, and tendons and the like of the trainee can be adjusted easily, even for a female. Also, because the expanders used for weight loading can be freely attached and detached, conventional use is also possible, and [the apparatus] exhibits enormous benefits.

#### **4. Brief Description of Drawings**

Fig. 1 is a plan of the comprehensive training apparatus of the present invention, Fig. 2 is a front view thereof, Fig. 3 is a right side view thereof, Fig. 4 is a left side view thereof. Fig. 5 is an enlarged view of the twist unit in the right side view, Fig. 6 is a diagonal view of the ankle training unit in the left side view, and Fig. 7 to 14 are diagrams of body positions during training.

- 17 ---- hook
- 18 ---- crossbar
- 19 ---- pulley
- 20 ---- pin
- 21 ---- bracket
- 22 ---- main pulley
- 22' --- sheave channel
- 23 ---- auxiliary pulley
- 24 ---- lateral bracket plate
- 25 ---- hook
- 26 ---- lateral expander
- 27 ---- cord
- 28 ---- band attachment hardware
- 29 ---- extension plate
- 30 ---- main pulley
- 30' --- sheave channel
- 31 ---- auxiliary pulley
- 32 ---- bracket plate
- 33 ---- cord
- 34 ---- band attachment hardware
- 35 ---- extension plate

- 36 ---- L-shaped pipe
- 37 ---- lateral reinforcing rod
- 38 ---- upright bearing
- 39 ---- base plate
- 40 ---- thrust bearing
- 41 ---- radial bearing
- 42 ---- revolving disc platform
- 43 ---- center shaft
- 44 ---- nut
- 45 ---- grip pipe
- 46 ---- T-shaped handle lever
- 47 ---- L-shaped pipe
- 48 ---- lateral reinforcing rod
- 49 ---- base plate
- 50 ---- foot holder
- 51 ---- connecting belt
- 52 ---- heel stopping bracket
- 53 ---- foot securing belt
- 54 ---- reinforcing plate
- (54) --- long channel
- (54)' -- slot
- 55 ---- bracket
- 56 ---- pin
- 57 ---- stopper
- 58 ---- stopper
- 59 ---- grip pipe
- 60 ---- T-shaped handle lever
- 61 ---- ankle band
- 62 ---- elongation cord
- 63 ---- neck band
- 64 ---- wrist band

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Agent            Tatsuo Hidejima [seal]

Fig. 1

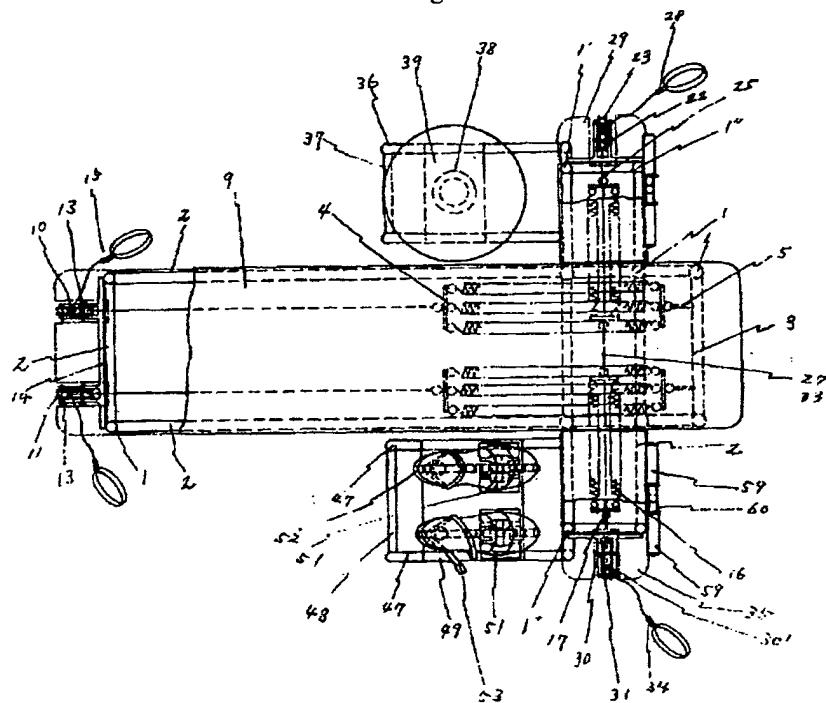


Fig. 2

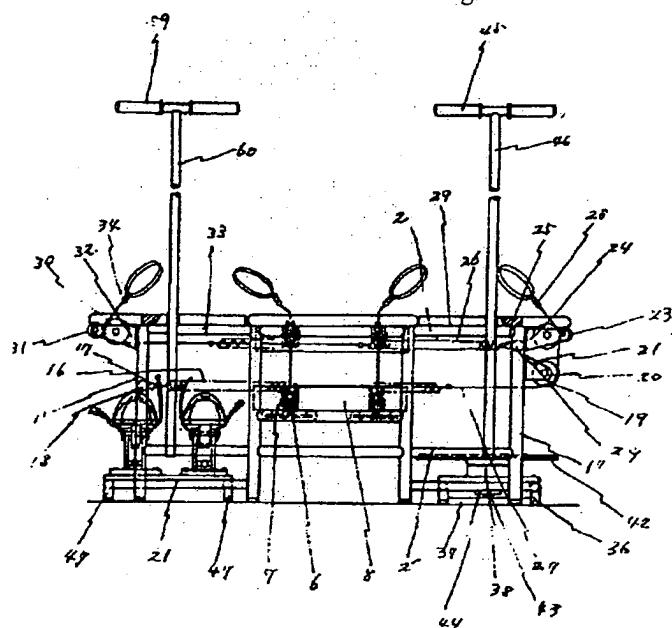


Fig. 3

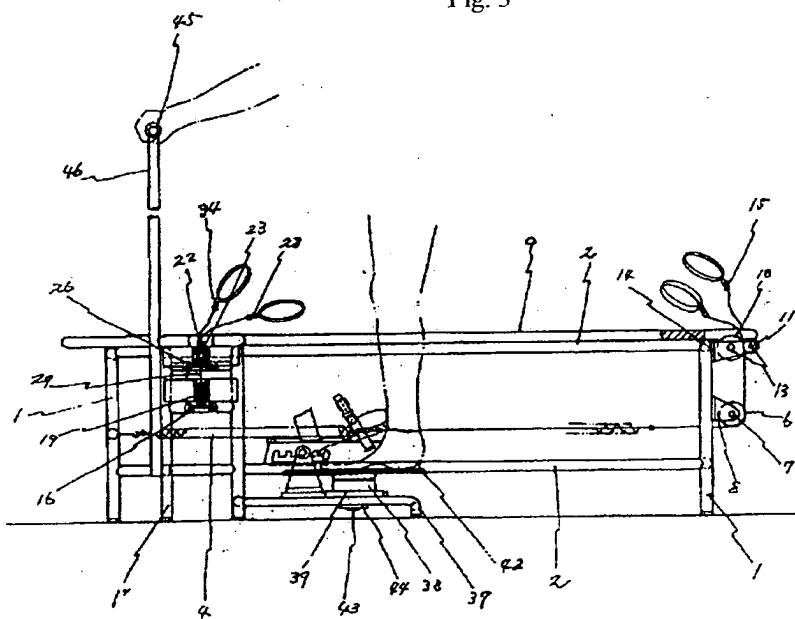


Fig. 4

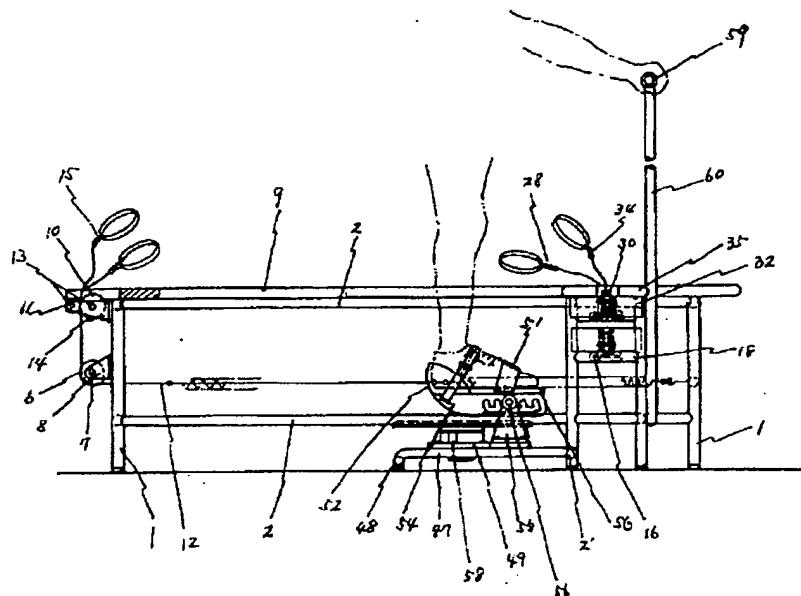


Fig. 5

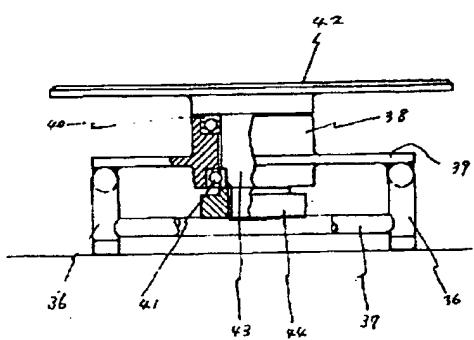


Fig. 6

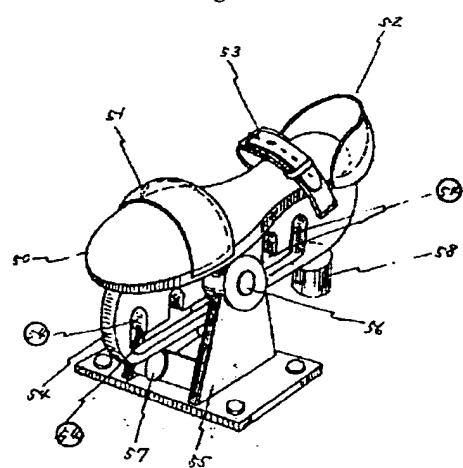


Fig. 7

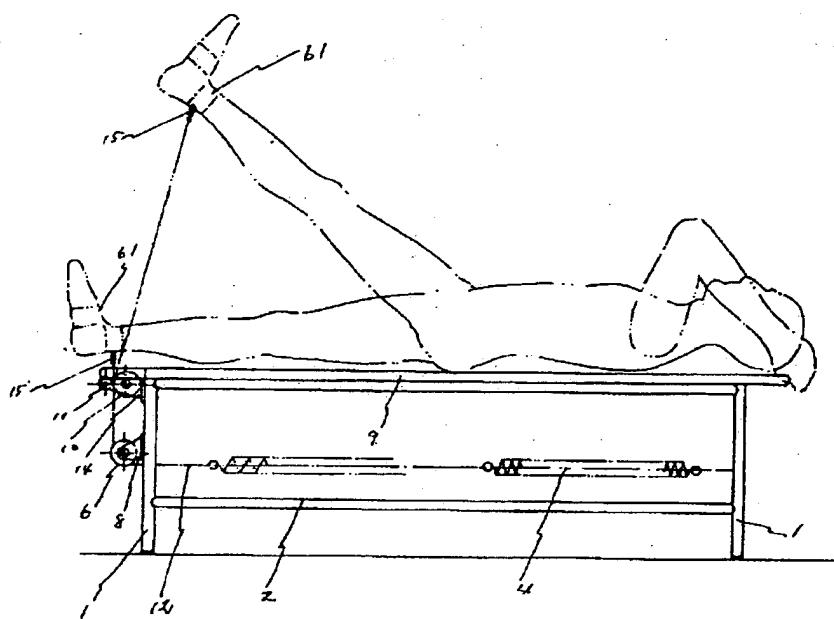


Fig. 8

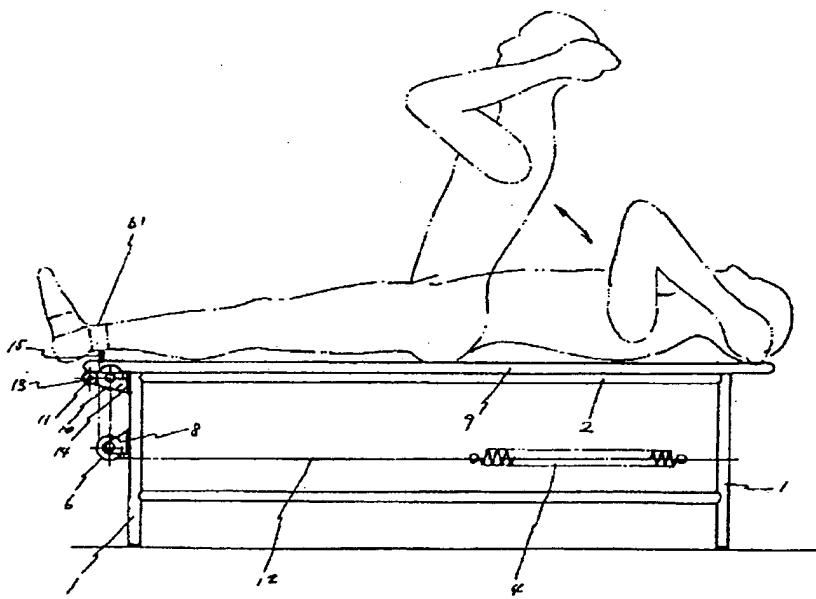


Fig. 9

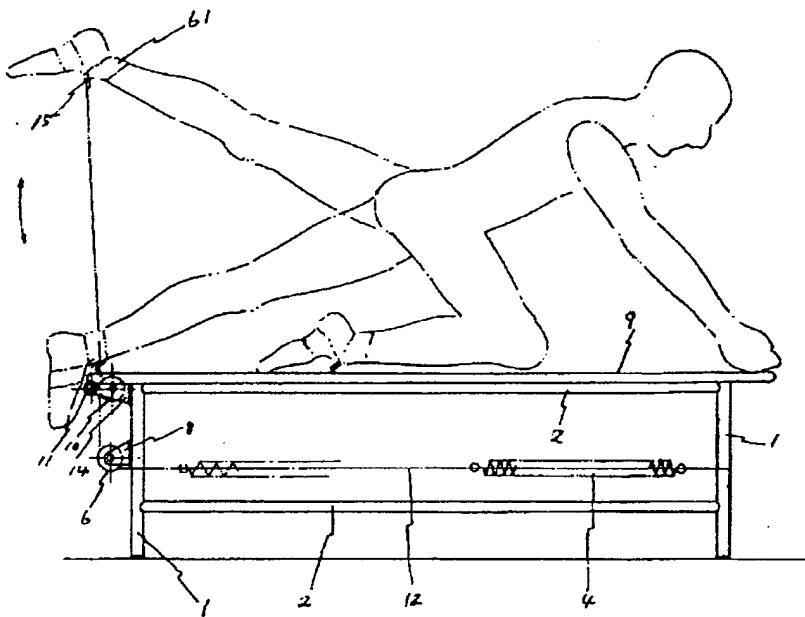


Fig. 10

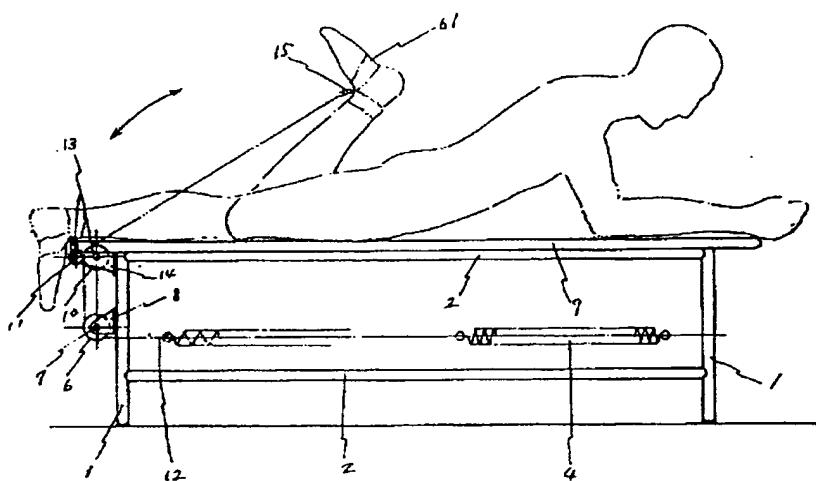


Fig. 11

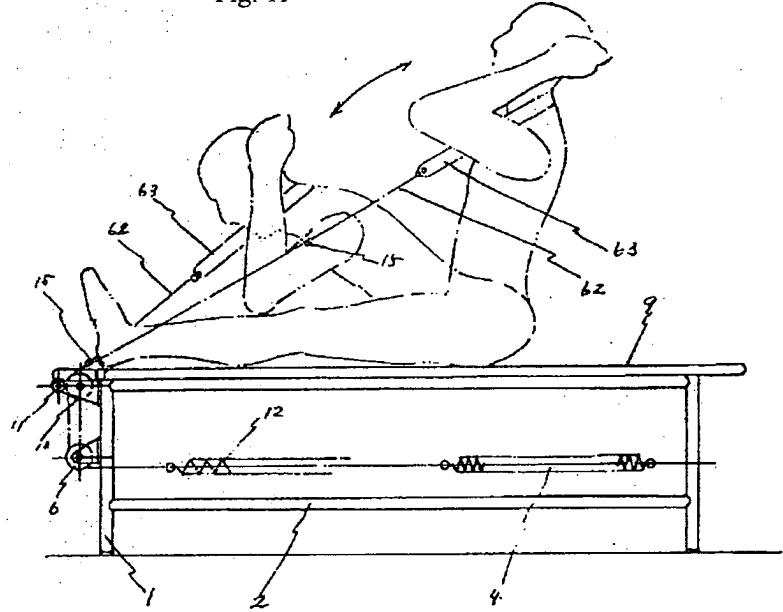


Fig. 12

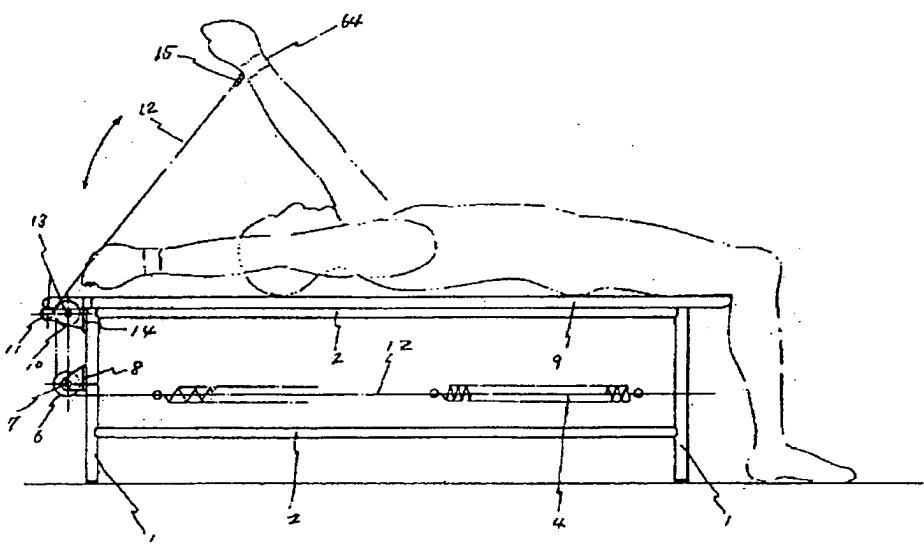


Fig. 13

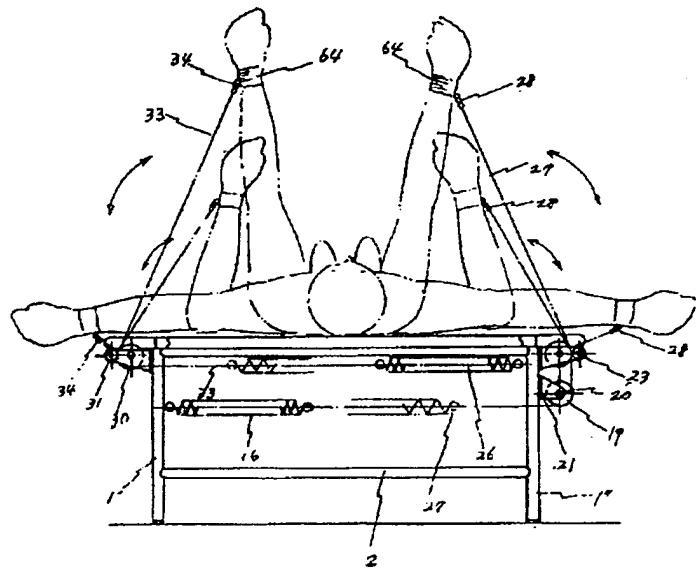
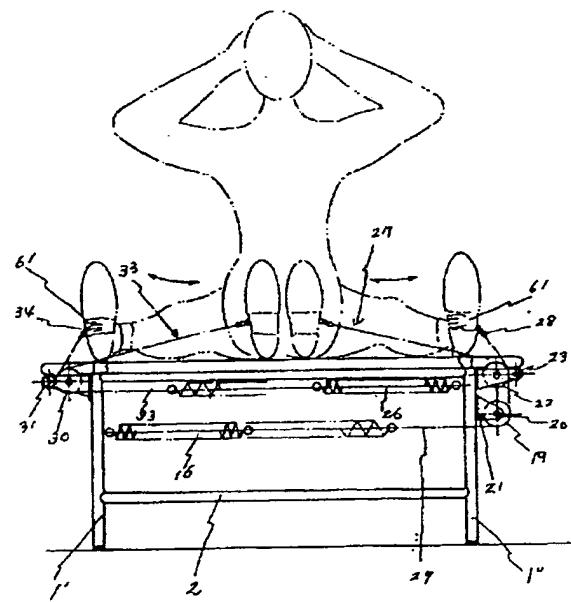


Fig. 14



⑨ 日本国特許庁 (JP) ⑩ 特許出願公開  
⑪ 公開特許公報 (A) 昭55-148571

⑫ Int. Cl.<sup>3</sup> 識別記号 行内整理番号 ⑬ 公開 昭和55年(1980)11月19日  
A 63 B 21/00 23/00 7040-2C 7040-2C 発明の数 1  
7040-2C 審査請求 未請求

(全 11 頁)

④ 自力鍛練強化の総合装置

⑤ 特 願 昭54-56065  
⑥ 出 願 昭54(1979)5月7日  
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明細書

1.発明の名称

自力鍛練強化の総合装置。

2.特許請求の範囲

鍛練と横型を組合せて一体形としたペクト①の下部に夫々複数本のエキスパンダー④⑥を藉・脱自在に掛離装着する鍛練強化器において脚部②の上方部の上下にブリケット板脚部を固定して滑車③の夫々を軸着し、更に上部ブリケット板脚には補助滑車⑤を藉りて連結紐を挿入して介する紐の端部にはハンドを取り付ける取り扱い工具を夫々有し、ペクト脱・横共に同一方式の横紐を備えて鍛練のエキスパンダーを別々に作用せしめ、又横型ペクトの左右の足元に夫々別機械のツイスター及び足首鍛練器等を配備し、個々に順次使用する事により全身の鍛練強化を成し得ることを特徴として成る自力鍛練強化の総合装置。

3.発明の詳細な説明

本発明は鍛練と横型を組合せて一体形とした十字型ペクトの正面側床の下の脚部に公知エキスパンダーの一端を掛離せしめ、その他端に連結紐の一端の結着せしめ、十字型ペクト裏面側の脚部に設けた滑車を介し、その直上端ペクト並に設けた滑車の間に連結紐を通し紐の端にはペクトを掛ける金具を有し、ペクト両側面の補床の下端に公知のエキスパンダーの一端を夫々に掛離せしめ、このエキスパンダーの夫々の他方端に連結紐を結着しとの紐の他端をペクトの夫々の補上端部に設けた二個の滑車の間と一方の紐の二箇滑車の下に夫々の連結紐の紐のエキスパンダーが交換しない様に一箇の滑車を設けこれ等を次々介して紐端にベルトを掛ける金具を結合し、この金具に足、手、首等の夫々のベルト掛け機のエキスパンダーの延び縮みの力を利用してする複合鍛練器の横型ペクトをわら

前床の下脚部に腰部を掩り腰部下の筋肉、関節等を鍛練するためのフィスターと、足首の屈筋、筋肉、腱等の鍛練をするための既に出願済の実用新規第179150号の足首鍛練強化器を組合せ全身の筋肉、関節及び腱等の鍛練強化を計り全身鍛練を防ぐものとして用うる事の出来る自力鍛練強化の場合は該装置に関するものである。然らば本発明の構成並びに実施様式について図をもつて詳しく述べると次の通りである。

パイプ脚(1)とパイプ横杆(2)で連結組立して十字型基台を形成し、正面側の脚の高位側に横杆(2)を取り、この横杆には公知の同様のエキスパンダー(4)をもつて適宜の間隔で二組脱着自在なるフック(5)を取付け、ベット裏面側の脚(3)に上記フックと同周囲で左右に二箇の滑車(6)を夫々にピンの通したブリケット板(7)を適宜の高さに取付け、その夫々の滑車(6)の垂直上部で床(8)の

(a)

に滑車(6)をピン回収したブリケット板(7)を足踏し、その滑車(6)の垂直上部に主滑車(9)と補助滑車(10)と組合せたブリケット板(7)を固定し、左側脚部のフック(5)にエキスパンダー(4)の一端を掛懸し、他端は連結紐(11)を結着して滑車(6)を介して上記主滑車(9)と補助滑車(10)とのシープ接続(12)を造りして、バンド取付金具(13)を取付けとの上に適宜に切込んだねじ板(14)を右側の基台上に固定して左脚部を形成し、左脚部は左脚基台パイプ脚(15)にフック(5)を中间部に固定せしめた横杆(2)を適宜の位置に取付け、主滑車(9)と補助滑車(10)とを組合せたブリケット板(7)を左脚部脚(3)に取付けフック(5)にエキスパンダー(4)を掛懸し連結紐(11)を結着して二つの主滑車(9)と補助滑車(10)のシープ接続(12)間を造りてバンド取付金具(13)を結着し、ねじ板(14)を右側の基台上に着して横方向の鍛練部を構成し、右側後方脚基台部(16)の下側横杆(2)に一回りパイプ(17)を二本平行且つ水平に横持並行面で

(b)

特開昭55-148571(2)  
底下に主滑車(9)と補助滑車(10)との二つで連結紐(11)が作動した際この紐が滑車(6)のシープ接続(12)から外れない様にし、二つの滑車(6)の外周部を合せた状態になる様に左右夫々のブリケット(7)にピン回収したブリケット板(7)を固定してこの左右滑車(6)の間隔と同脚間に適宜に切込んだ矩形の床(8)を基台上に固定し、上記二つのフック(5)に夫々にエキスパンダー(4)の一端を掛懸し他方端に適宜の長さの連結紐(11)を結着し、この紐の他端は滑車(6)を介して主滑車(9)と補助滑車(10)の間を造りてその端部にはバンド取付金具(13)を結着し、この金具には各種バンドを取付けて、横方向の鍛練部を構成する。又右側面の適宜の位置に設けられた脚部の基台脚の左側脚部の脚(3)に前記横方向の鍛練部の二箇のエキスパンダー(4)及び連結紐(11)と交差しない様に適宜の位置にエキスパンダー(4)を掛懸するフック(5)を中央に着した横杆(2)を連結着し、右側脚(3)の間

(c)

もつて適宜間隔で連結しこの平行一型パイプ(17)上に中心部に堅調歯(18)を有する基台板(19)を固定着し、上記歯(18)の上側にスラストペアリング(20)下側にワジアルペアリング(21)を嵌合し、これに上部方向より回転円板(22)を中心輪(23)を螺旋合し下方より脚端に回転自在なる様にナット(24)を導入し、右側後方脚基台脚(16)の上下横杆(2)の適宜の位置に握り管(25)丁字型ハンドル(26)の左右に底押着した丁字型ハンドルレバー(27)を固定起立着せしめてツイスト部(28)を構成し、又左側後方脚基台脚(16)の下側横杆(2)に左側フィスト部(29)と同様に二本の一型パイプ(17)を固定し、パイプ横持並行脚(2)で連結し、平行U型パイプ(17)上に適合板(30)を固定し、内側一方の足競合脚(31)の上面前面夫々の左右両側にかつて足ベルト(32)を足着し、後部に止格子(33)を立設し、更に中間部に足附付けペクト(34)を着脱自在に装着し、左右夫々の足競合脚(31)の底部には前方から後方にかけて中央部

(d)

に補強板側の前方から後方にかけて長溝<sup>④</sup>を設け、この溝より上方に幅状に適宜に複数個の切込溝<sup>⑤</sup>を設けて歯受とし、この間に相当の高さの脚部をもつたアラケット脚を定着し、アラケット上部に貫設した孔内に支輪側を嵌着して該支輪側上を運動、回動自在に運動するよう並着し、上記アラケット側の脚部適宜の位置に爪先部の動きを規制するストッパー脚を固定し、基台板側上に左右足載台部を夫々適宜の間隔で平行に揃えて載置固定し、足載台後下方脚の動きを規制するストッパー脚を夫々基台板側上に固定し、フィスト部と同様に握り管側を有する丁字型ハンドルレバー脚を立設して足首鍛錬強化部とフィスト部足首鍛錬部とで全身の鍛錬強化が出来る総合鍛錬強化装置である。

#### 実施例

横方向鍛錬部の用法について述べると鍛錬者は

(1)

取付金具を掛け四つんばいベースで片脚を後方に上げる。反対脚も上げるととにより脚筋、臀部の鍛錬をするものである。

鍛錬<sup>⑥</sup>はうつ伏で腹ばいになり両脚と足首を反復して曲げる事により大脚部の筋筋を鍛錬するものでももの筋肉内をひきしめるものである。鍛錬<sup>⑦</sup>は左右二つのバンド取付金具に延長鍛錬部を有する首バンド脚を掛け体を前に曲げ首の後にバンドを掛け腰を延ばすことにより反復により首、背、腹筋の鍛錬が出来るものでこれを予防するものである。

鍛錬<sup>⑧</sup>は仰向けで頭を汽車側に位置して二つの手首バンド脚をバンド取付金具に取付け脚を上方に延して上方の前側に反復持ち上げる事により脚、胸、肩部の鍛錬を行い、腕と肩をほそく脚をよくよかにするものである。

次に横方向の鍛錬部は足首バンドを左右に差し鍛錬<sup>⑨</sup>は床に座して脚を開きバンド取付金具

(2)

特開昭55-148571(3)  
両足首バンド脚を並着して夫々にバンドをバンド取付金具に掛けて鍛錬を開始するが、以下本発明総合鍛錬における鍛錬による鍛錬の仕方について述べる。

鍛錬<sup>⑩</sup>は床に仰向きに寝板び床の頭上部を両手で握り両脚を同時に又は交互に上下に足をあげおろしの反復鍛錬することにより、下腹部、足の筋力、持久力をつけ鍛錬強化するもので下腹部、脚のせい肉をとり足の老化を予防するものである。

鍛錬<sup>⑪</sup>は仰向状態で両足を床に付けたままで両手を頭の後に組み腰を伸ばして体を少し後へ倒すこの状態で腰、背筋の鍛錬をあらうものでウエストを細く背すじを作るものである。

鍛錬<sup>⑫</sup>は仰向けで手を頭の下に肘をよせながら首と肩を起す、又上体を起すことにより腰、肩、首、腹部の鍛錬を行う。

鍛錬<sup>⑬</sup>は足首バンドの位置を両側にし、バンド

(3)

に掛け脚を閉じたり開いたりして反復動作をする事により臀部、内大脚部の筋肉の鍛錬を行うことが出来る。

鍛錬<sup>⑭</sup>は仰向け後で両手を離き両手首バンドをバンド取付金具に掛け脚を延したままで上脚方向に引上げる動作を反復することにより肩部脚部、胸部の鍛錬を行い、脚部、胸部の鍛錬を行うものである。

鍛錬<sup>⑮</sup>は肘頭部より曲げ前腕部のみ上腕方向に引上げる事により前腕上腕筋部を鍛錬を行うものである。

鍛錬<sup>⑯</sup>は円板載台上に立ち丁字型ハンドルレバーの握り管を握りウエストをねじり、内臓の働きをよくしたり、足底の鍛錬を行いうものでわななかのまわりの筋肉をひきしめるものである。

鍛錬<sup>⑰</sup>は足載台上に足を定着せしめた後、丁字型ハンドルレバーの握り管を握り体勢を整えて脚受を中心にして、シーソー式に爪先で同時に又は

(4)

左右交互に立つ様に爪先を下け又踵を下げると  
との繰の上下反復運動により足首の関節、筋肉、  
脚等の鍛錬を行りもので足首、ふくらはぎをひ  
きしめるものである。

この様に一台の鍛錬器により手、脚、腹、腰、  
背、肩、首の全身各部の筋肉、関節、脚等の各  
方向よりの鍛錬が出来ると共に全身美容効果を  
有するので、鍛錬者への筋肉、関節、脚等への  
鍛錬負荷はエキスパンダーのスプリング数により  
簡単に女性にも調整出来負荷適度として用い  
るエキスパンダーは脱着自在なるために本來の  
使用も出来極めて多大効果のあるものである。

#### 4. 図面の簡単な説明

第1図は本発明の結合鍛錬器の平面図で、第2  
図はその正面図で、第3図はその右側面図で、  
第4図はその左側面図である。第5図は右側面  
のワイヤー部拡大図で、第6図は左側面の足首  
鍛錬部の斜視図で、第7図～第14図は構成部  
品

特開昭55-148571(4)  
位を図示したものである。

- 1. パイプ...パイプ脚
- 2, 2'...横杆
- 3...横杆
- 4...横エキスパンダー
- 5...フック
- 6...滑車
- 7...ピン
- 8...横ブレケット板
- 9...継承
- 10...主滑車
- 10'...シープ滑
- 11...補助滑車
- 12...継
- 13...ピン
- 14...ブレケット板
- 15...バンド取付金具
- 16...横エキスパンダー

54

- 17...フック
- 18...横杆
- 19...滑車
- 20...ピン
- 21...ブレケット
- 22...主滑車
- 22'...シープ滑
- 23...補助滑車
- 24...横ブレケット板
- 25...フック
- 26...横エキスパンダー
- 27...継
- 28...バンド取付金具
- 29...袖板
- 30...主滑車
- 30'...シープ滑
- 31...補助滑車
- 32...ブレケット板
- 33...継
- 34...バンド取付金具
- 35...袖板
- 36...縦パイプ
- 37...横補強杆
- 38...堅継軸受
- 39...基台板
- 40...スラストベアリング
- 41...ラジアルベアリング
- 42...回転円板取合
- 43...中心軸
- 44...ナット
- 45...掘り管
- 46...丁字型ハンドルレバー
- 47...縦パイプ
- 48...横補強杆
- 49...基台板
- 50...足駒台

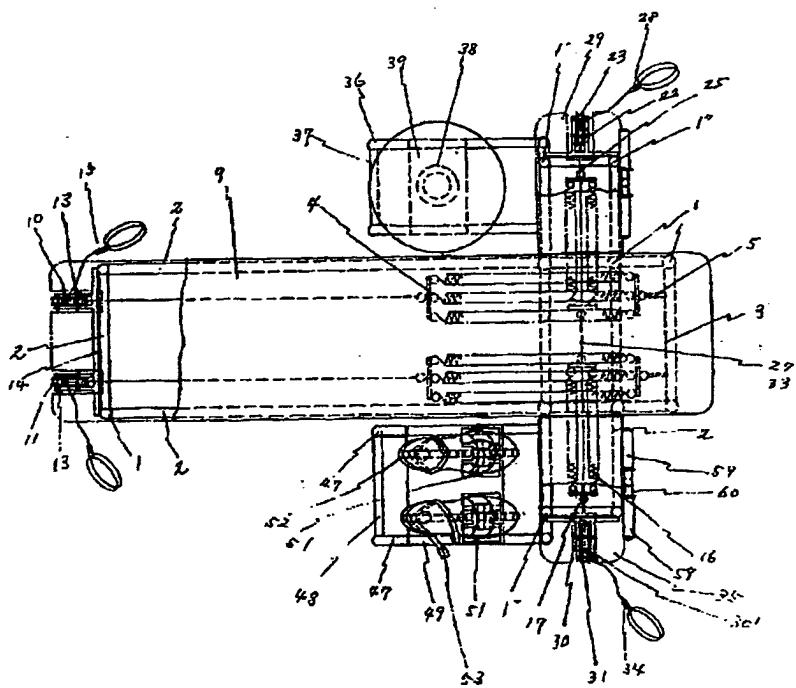
54

- 51 ----- 腕ベルト
- 52 ----- 防止桿
- 53 ----- 足伸縮付ベルト
- 54 ----- 撥盤板
- 55 ----- ブラケット
- 56 ----- ピン
- 57 ----- ストッパー
- 58 ----- ストッパー
- 59 ----- 繋り管
- 60 ----- 丁字型ハンドルレバー
- 61 ----- 足首バンド
- 62 ----- 肘長巻
- 63 ----- 首バンド
- 64 ----- 手首バンド

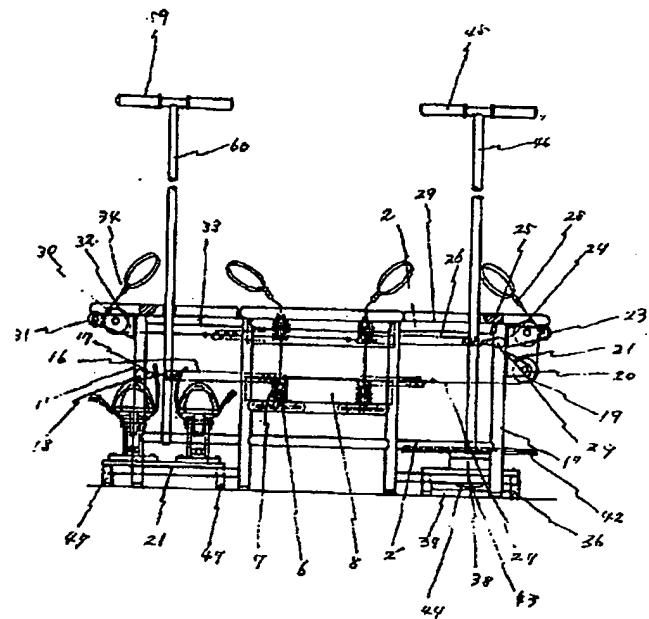
出願人 小川 桂  
代理人 宗島 道

特

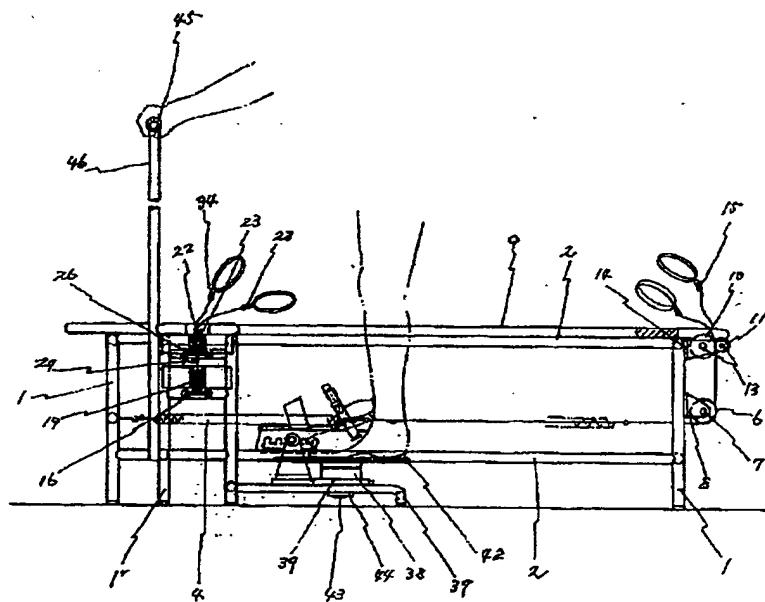
第1図



水刀图

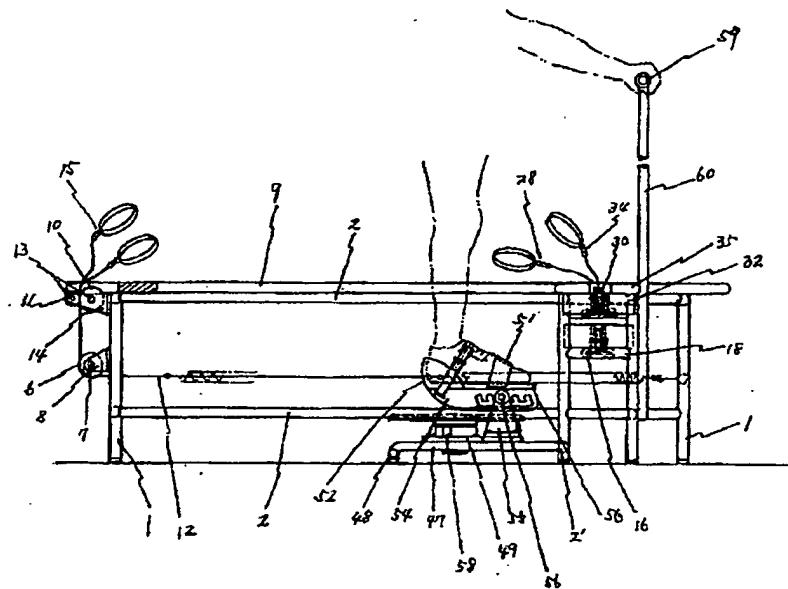


卷之四



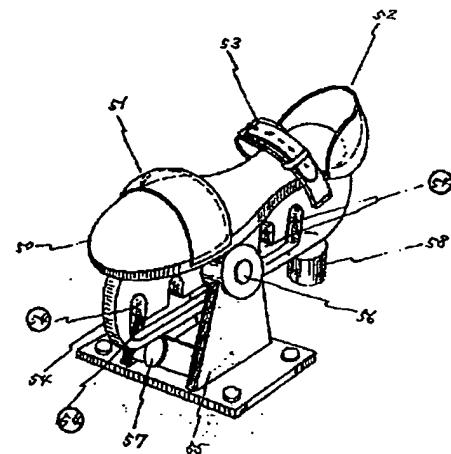
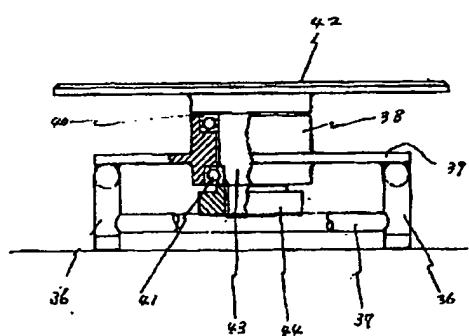
特願昭55-148571(7)

卷之四



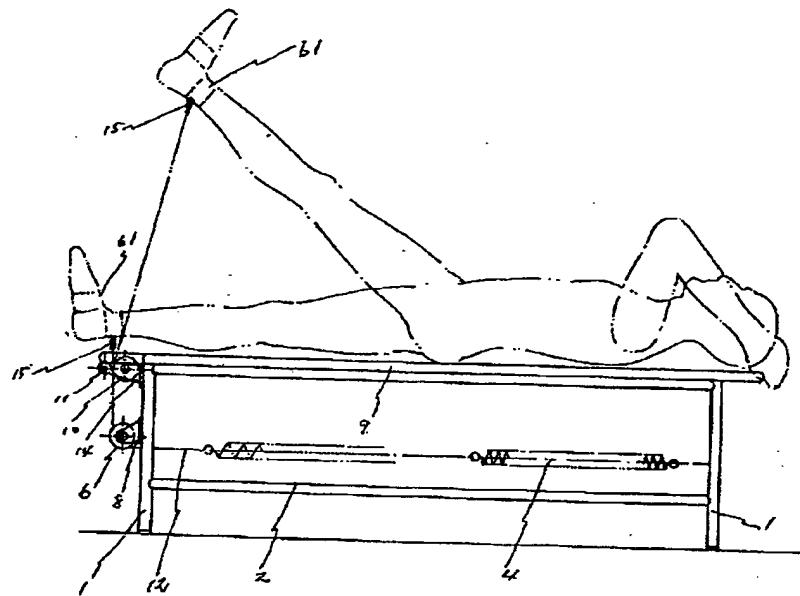
六四

第5回

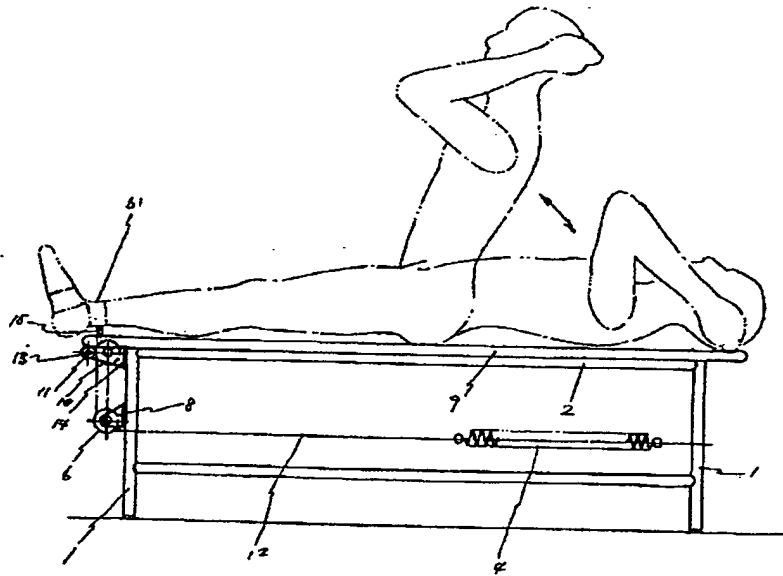


第7図

特開昭55-148571(8)

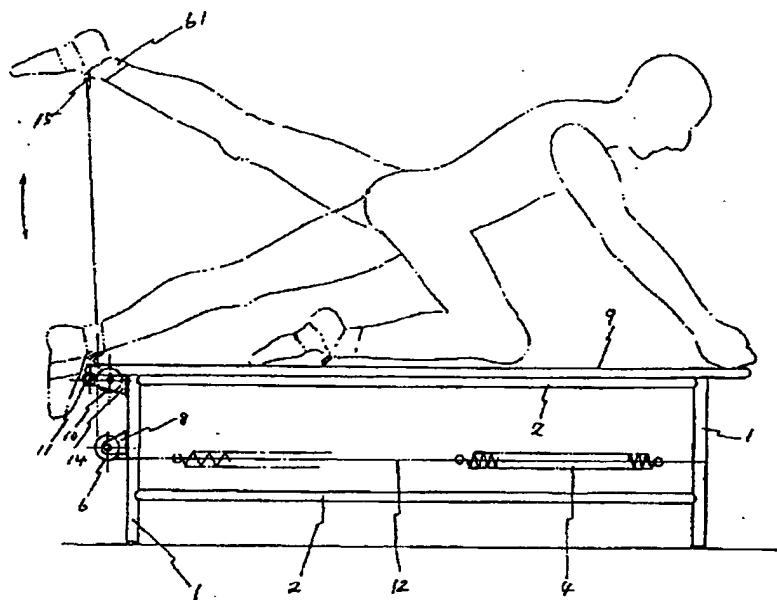


第8図

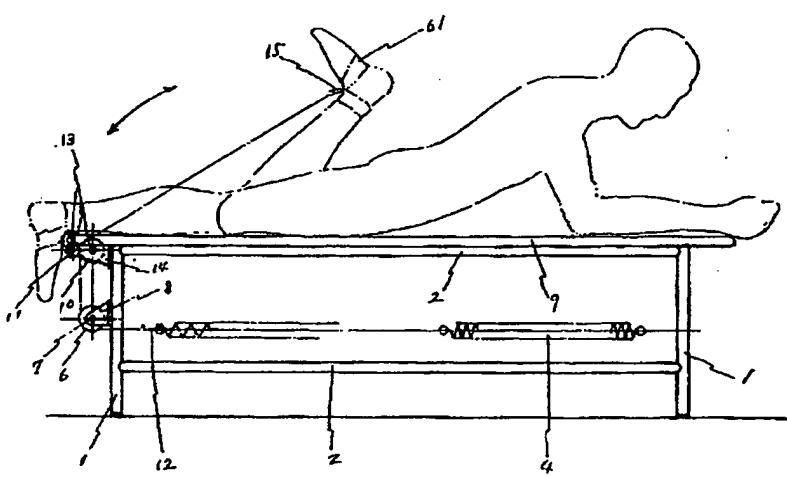


特開昭55-148571(9)

第9回

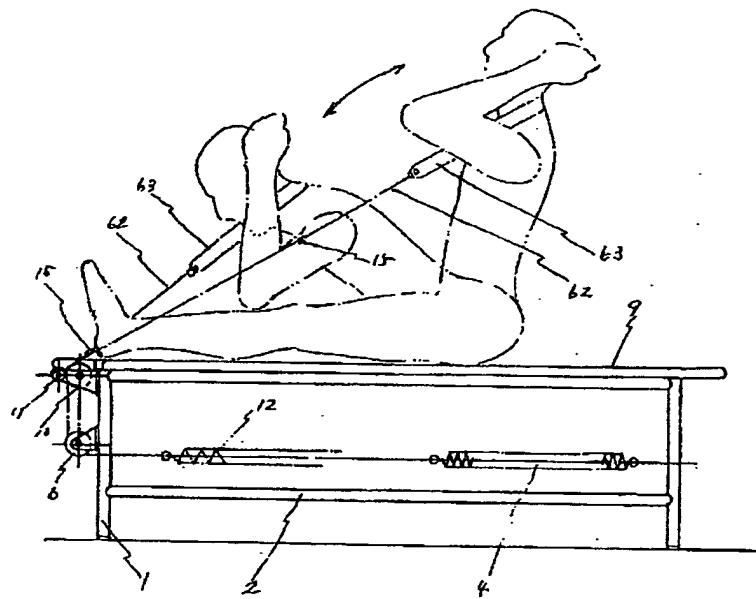


第10回

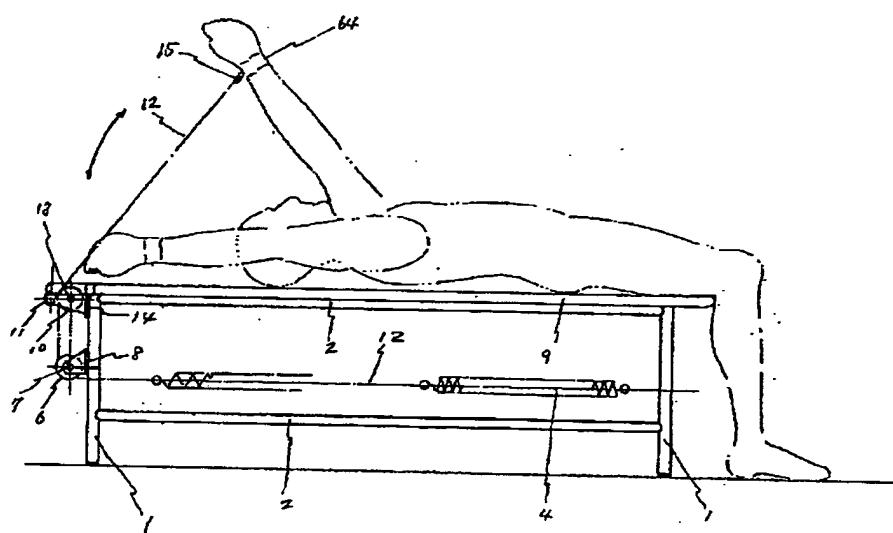


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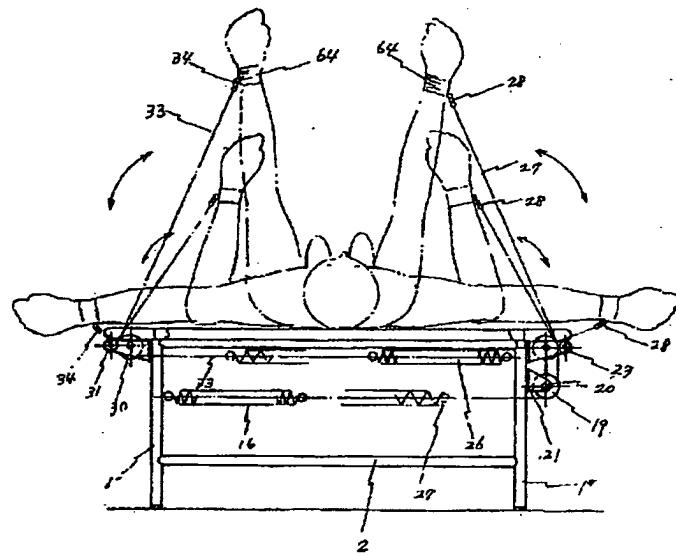
第11回



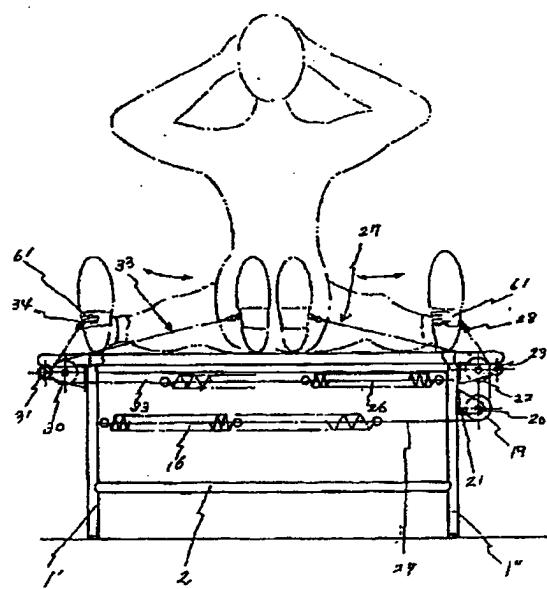
第12回



第13図



第14図



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